

Date: Thu, 3 Nov 94 04:30:22 PST
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
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Subject: Ham-Ant Digest V94 #364
To: Ham-Ant

Ham-Ant Digest Thu, 3 Nov 94 Volume 94 : Issue 364

Today's Topics:

50 Ohms Why ?
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Kepler Data.
Source of ferrite cores
Uzbekistan licensing requirements?
Want to put up half of a TH6DXX

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Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

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We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Mon, 31 Oct 1994 08:37:38 GMT
From: thomas.g.booth@mmc.den.com (Booth, Thomas G.)
Subject: 50 Ohms Why ?

In article <CyEMvv.Dz5@hpcvsnz.cv.hp.com>, tomb@lsid.hp.com (Tom Bruhns)
wrote:

>

(good stuff from Tom deleted...)

>

> In any event, the min attenuation thing is a rather broad minimum. I think
> the answer really comes down to "a lot of practical loads like resonant
> antennas are in the vicinity of 50 ohm loads, and the dimensions of the
> line are practical." Some engineers quite a while ago made an engineering
> choice which has been good enough that there hasn't been any serious effort
> to change it. In fact, the 75 ohm standard for TV and video stuff might be
> more interesting. Someone apparently saw fit to buck the 50 ohm standard
> on that. Anything to do with the ease of going from a 300 ohm folded
> dipole to 75 ohms with a balun?

>

> 73, K7ITM

I'm not sure it was just the TV guys who bucked the trend - in my old ITT Handbook, reference is made to some of the early experimental long-distance coaxial cables AT&T built between New York and Philadelphia, etc.; these cables were around 75 ohm. I wonder if any old Bell System Technical Journals would shed light on why a characteristic impedance of 75 ohm was chosen?

I like Tom's balun notion as regards the choice of 75 ohm in TV, but I seem to remember coming across an old pre-World War 2 RCA Review article discussing the virtues of 300 ohm twin lead for TV receiver use (but that was in the days of RCA's 441 line experimental TV system and UHF TV broadcasting wasn't even a twinkle in somebody's eye yet), FWIW.

TGB

\\ The opinions expressed in this posting are my own. //

Date: Tue, 1 Nov 1994 14:25:38 GMT

From: zlau@arrl.org (Zack Lau (KH6CP))

Subject: Antenna question!!!!!! PLease HELP!!!!!!

Scott Darragh KE6MGW (sdarragh@cisco.com) wrote:

: I am trying to figure out a way to put up a low profile antenna. I have a
: little room to play with in regards to how profile it is. I asked if I
: could put up an antenna on the rain gutter and she said keep it as low
: profile as possible.

Surprisingly, a *full size* open wire fed dipole may fall into the
low profile category. Depending on your landlord's eyesight,
she may or may not find it obtrusive. Paying your rent on time
each month may also help change the definition. I added a full
wave 80 meter loop last year around the 2nd floor apartment

that I rent (actually, its around the entire building... :-))

On the other hand, things like traps, loading coils, and coax
do tend to be easier to see.

--

Zack Lau KH6CP/1 2 way QRP WAS
 8 States on 10 GHz
Internet: zlau@arrl.org 10 grids on 2304 MHz

Date: Sat, 29 Oct 1994 19:11:17 GMT
From: rkm@vectorbd.com
Subject: Best wire for dipoles?

Ron Cole (rdcole@crl.com) wrote:
: Mike Staples (fa419@cleveland.Freenet.Edu) wrote:

: : For 1/2 wavelength wire dipoles in the 10 - 80 meter range, whats the best
: : type of wire to use? Solid? Stranded? Insulated? Non-insulated? Also, what's
: : "Copperweld" and what does "hard drawn" mean?

: I would use the Copperweld because of the strength of the steel core.
: There is a stranded antenna wire being sold that looks good to.
: It featuers a large strand count thst is woven in a roap like
: manner, it strong and flexiable, expensive somthing like 20 to 40 cents
: per foot. I first saw this wire used as trailing wires for HF radios on
: Aircraft. Check for the Ad's in 73 and QST.

You're probably talking about "flex-weave." I just purchased 150'
from RadioWare, and put up a 40m dipole with it. It's interesting stuff
- as noted before, it's just like rope. I'll wait a few months and issue
a review of how well it tolerates northern winters. :-)

- Rich

Date: Wed, 2 Nov 1994 15:39:39 GMT
From: veltman@netcom.com (paul Veltman)
Subject: COAX INFO WANTED

Some ham at Intel down in Chandler wanted some coax info from me. In my
state of normal disorganization, I lost his snail mail address. If he

reads this message, please send me the address again, and I will put it in the mail today.
Sorry for the delay.

Paul WA6OKQ
<veltman@netcom.com>

Date: Tue, 1 Nov 1994 00:43:44 GMT
From: wa2ise@netcom.com (Robert Casey)
Subject: Copper J-Pole measurements

In article <CyG6zu.5u4@freenet.buffalo.edu> aa450@freenet.buffalo.edu (Kurt Rieder) writes:

>
>In a previous article, roberston@HDFS3 (Brad Roberson) says:
>
>>PLEASE, I beg of you, DO NOT SEND INFO ON TWIN-LEAD J-POLES. While I appreciate
>Brad,
>You seem frustrated... maybe for good reason. The arrl handbook has
>the formulas if you know what you want to build. In the end you will
>still need to either: 1) trim and measure till it's right, or, 2) use
>empirical measurements provided by someone who has done it before.
>If all you want to do is build a j-pole from 1/2" (5/8" actual) copper
>tubes, then cut 60.50", 18.75", 1.50" pieces. Use a tee and elbow to
>assemble them. Also put a cap on top. Attach the coax 2.25" up from
>the centerline of the horizontal tube. These dimensions give good
>performance over the 2M band.
>
>I suppose you could use the dimensions I gave above and work them backwards
>to come up with a formula... then you will have a formula for your j-pole.
>not any other, just yours.
>--

As I understand these things, a Jpole is an end-fed 1/2 wave antenna, the section of pipe (or twinlead) above the length of the shorter pipe is the actual radiating antenna, the part where there are two pipes adjacent is a feedline, the impedance of which is determined by the separation of the pipes, and the diameter of those pipes. The coax tap point is selected to match into the impedance of this pipe "twinlead", the short on the bottom makes a stub.

So, to scale this antenna design above, keep the pipe diameters and separation the same, and multiply the lengths of the pipes, and the tap position, by the ratio of 146/<other freq>. Compensate for differences caused by the elbows, so the overall length meets the ratio. Probably not too important, the upper frequency limit as to how far you can scale is probably reached when the pipe separation becomes a big

fraction (1/8th ?) of the wavelength. You could probably do it to 222MHz but I doubt 440. The coax tap location also scales. Use some ferrite beads over the feedline near the tappoint (over the outside shield with inside conductor still inside the shield). Or coil a few turns of coax instead. Keeps the feedline from radiating, just like a regular dipole being fed by coax.

Keeping the seperation the same (you don't have a choice with twinlead!) and scaling the lengths is all you need do, that's all that JPOLE.EXE program I made up last summer really did!

Date: 29 Oct 1994 19:15:02 GMT
From: cmoore@scorpion.ch.intel.com (Cecil A. Moore -FT--~)
Subject: Dipole question's

In article <CyE1GH.20Fv@austin.ibm.com>, <rtrommer@vnet.ibm.com> wrote:
> the "Antenna Length Chart" by K5KG, he shows that for a 1/2 wave
> (+5%) dipole on 3.8 MHZ the length would be 129.19 feet, could I
> then use this for 7.2 MHZ (full wave = 129.87 feet), 14.2 MHZ
> (full wave = 65.85 feet or 2 full wave lengths), 21.25 MHZ (full
> wave = 44 feet or 3 full wave lengths) and 28 MHZ (full wave = 33.40
> feet or 4 full wave lengths).

Hi Rick, The most popular length for a multi-band dipole is 100-105 ft which is non-resonant on the ham bands. However, 450 ohm ladder-line will "match" 45 ohms to 4500 ohms with an SWR of 10/1 or less so 129 ft will probably work but you may have trouble getting your antenna tuner to match the extremely high transformed impedance of a full-wave dipole. I chose 88 ft for my multi-band dipole because ELNEC says that length (10/8 wavelength on 20m) gives me 9dbi broadside gain on 20m and four 8dbi lobes on 17m allowing me to cover most of the world on 20m and 17m. 10/8 wavelength is maximum broadside gain and above that frequency the radiation pattern is cloverleaf.

--
73, Cecil, KG7BK, 00TC (All my own personal fuzzy logic, not Intel's)

Date: Wed, 2 Nov 1994 20:16:47 GMT
From: rafael@zimmer.CSUFresno.EDU (Rafael Solis)
Subject: Dual Band J-Pole?

Folks!

Is it possible to build a 2m/73cm dual band J-Pole? I'm asking since

I bought one at a hamfest (made of aluminum rods) that the seller told me it would work with both bands. After seeing all the J-pole designs posted in this group I noticed that the measurements are different for each band. Did the seller lie to me? The antenna works great with my 2m rig, but I'm planning to buy a dual-band radio in the near future, will I have to buy another antenna?

73 de Rafael, KE6JSR

Date: Tue, 1 Nov 1994 20:10:50 GMT
From: alanb@hpnmarb.sr.hp.com (Alan Bloom)
Subject: Experiences with Isotron limited space HF antennas

Riyadth Al-Kazily (riyadth@boi.hp.com) wrote:
: Hello,

: I recently upgraded to Tech-Plus, and I want to get onto HF, but have
: assembled everything I need except for a reasonable antenna (a receiving
: wire draped around the room on picture frames and curtain rods just won't
: cut it, I'm afraid). I read a recent review of the Isotron 40m antenna
: in '73 Magazine, and I was wondering if anyone out there has had experience
: with these unusual, small antennas.

You'll notice that the Isotron is not advertised in QST. I think the reason is that ARRL insisted that they not make unjustified gain and efficiency claims in their ad.

I used the 80 meter one on a Field Day many years ago. It worked about as well as a dummy load. I found that if I shorted the coax center conductor to shield and used the coax as a random wire, I got out much better. (By "much better" I mean 10-20 dB)

I'd say save your money.

AL N1AL

Date: Thu, 3 Nov 1994 07:03:30 GMT
From: aa450@freenet.buffalo.edu (Kurt Rieder)
Subject: Hombrew Ceramic Insulators?

In a previous article, rstalls@access1.digex.net (Tony Stalls) says:

>Big roller inductors are expensive! (Kilo-Tec lists their 3 KW, 24 uH, @

>\$150... Wow!) They aren't complicated and I can't see why one couldn't be
>made for very little IF I can come up with proper ceramic insulators.
>However, meeting particular specs might be a little difficult from the
>usual surplus sources and going elsewhere puts us right back in the price
>range of buying a finished inductor.
>
>Does anybody have any experience at making ceramic insulators or know of a
>source that describes what the proper materials are and how it should be
>fabricated?
>

Making ceramic parts equal to those normally found in RF parts is a BIG
challenge because the "right" composition requires a MUCH higher firing
temperature than, say... your coffee mug. The proper material is almost
all alumina... just a little silica to make it fuse... porcelain. Ordinary
pottery is closer to half silica.

However, I have seen rotary variable inductors built on composites. Just
a guess, but how about glass fibers and epoxy resin ? That might be
something one could handle in the home workshop. Good luck.

Kurt
--

Date: 2 Nov 1994 15:04:03 GMT
From: galen@picea.CNR.ColoState.EDU (Galen Watts)
Subject: Isotron HF antennas, tuners, etc. Was Re: Experience with...

In article <CyLMLH.oq@boi.hp.com> riyadth@boi.hp.com (Riyadth Al-Kazily) writes:
> My biggest question is: can the 40m Isotron be used on 15m also?
>(3rd harmonics and all that stuff). Also, with a tuner would I be able
>to use it on other bands (ie, 10m)?

No and No. The Isotron is a series L-C circuit that resonates at only
one frequency. With a tuner you can extend the bandwidth, but not beyond
the band it was designed for. You can add capacitance or inductance to
change the res. freq., but to make it multiband is unrealistic.

Galen, KF0YJ

Date: Tue, 01 Nov 1994 23:16:03 -0500
From: ydawe@calvin.stemnet.nf.ca (Yvonne M. Dawe)
Subject: J-Pole for 2 meters

I have saved several examples of construction plans for 2m copper cactus and 300 ohm twin-lead j-poles with the intention of eventually making one, however, upon closer inspection of the details I notice that at least two individuals say to connect the shield to the 1/4 wave matching stub, while in other "plans" they say to connect the shield to the other side. Who is wrong? Or are both right? Can anyone please tell me: What side does the shield go to, and what side does the center conductor go to..?
Thanx in advance...

Please reply via E-mail.

Yvonne Dawe ydawe@calvin.stemnet.nf.ca

Date: 2 Nov 94 14:58:07 GMT
From: CCS_MAH@ADMIN.FANDM.EDU (Mark Hemlick Ph. D.)
Subject: J-POLE FORMULAE

Brad wrote:

>the mail and suggestions that is not what I want to build. I am looking
>along with another individual now who has seen my posts, for the following:
>

- > 1. J-Pole antenna project
- > a. must be constructed from 1/2" copper water pipe
- > b. must contain formulas for measurements
- > 1. length of 1/4 wave stub
- > 2. length of 3/4 wave stub
- > 3. spacing between stubs
- > 4. coax placement
- >

>Please, Please, PLEASE, I don't want numbers, but FORMULAS.

What frequency do you want to operate on with your project antenna? Making a J-pole doesn't have to be complicated and precise dimensions for the spacing between the stubs is not extremely critical. Regarding your formulae:

- 1. length of 1/4 stub: in inches: $2880/F$ mhz
- 2. 1/2 wave radiator: $5540/F$ mhz
- 3: thus, length of "long" conductor is the sum of 1 and 2 above.
- 4. spacing between stub and radiator: NOT EXTREMELY CRITICAL. Examples from the literature: 6 meter j-pole using 1 1/4 pipe: 3 inches. 2 meters "less than 2 inches, greater than 1/2 inch".

5. Coax placement: TRIAL AND ERROR. Especially easy for a copper tube J-pole. Temporarily attach inner conductor of coax and outer braid with hose clamps. Check SWR. Reposition until you get the best match.

BTW, I notice from your signature line that you may be an EMT or firefighter. If you're thinking of making a J-pole for use on the public service low band, 33 mhz, use the spacing recommended for 6 meters. It's not going to make a big difference if you use the TRIAL AND ERROR METHOD of determining the feedpoint.

73 Mark KA3LFG

Date: 31 Oct 1994 08:38:57 GMT
From: moritz@ipers1.e-technik.uni-stuttgart.de ()
Subject: Kepler Data.

Try rec.radio.amateur.space,
or look at the astro.ftp file in ftp.funet.fi
or look at the space.faq (I think in sci.astro)

Hope it works.. 73, Moritz

Date: Wed, 2 Nov 1994 15:09:39 GMT
From: dstock@hpqmdla.sqf.hp.com (David Stockton)
Subject: Source of ferrite cores

David Crooke (dcc@dcs.ed.ac.uk) wrote:
: My father (GM0RHP) is looking for a source of 4" long by 1/4" dia. ferrite
: core rods to build some fancy antenna. The only source he knows of is in
: California, USA - is there anywhere closer or am I best to just order them
: on plastic and have them pop them in the post in a jiffy bag?

: Dave

I can probably help. I may even have something suitable in my junk box. I've not seen your dad for some time.

There IS life in the UK on this group!

Cheers

David GM4ZNX

Date: 31 Oct 1994 15:20:14 GMT
From: bc21470@bingsuns.cc.binghamton.edu ()
Subject: Uzbekistan licensing requirements?

Date: Sat, 29 Oct 1994 21:16:28 GMT
From: slay@netcom.com (Sandy Lynch)
Subject: Want to put up half of a TH6DXX

: I live in town, and have a regular lot, neighbors, and a TH6DXX.

: The TH6DXX barely stays within the property lines with its 22 ft
: boom and 33 ft width. Not wanting to get roasted by the neighbors,
: I had the idea of using only half of the antenna:

Well, simply as an opinion why don't you sell the TH6DXX ...
take the money ... and buy a smaller tri-bander like a Cushcraft
A-3, A-4, or maybe a TA-33. What is it about the TH6DXX (a very
food antenna, I used to have one) that makes you want to keep
it and chop it up rather than get a smaller antenna?

Good luck.
73 de Sandy

Date: Mon, 31 Oct 1994 23:22:45 +0000
From: chris@chrism.demon.co.uk (Chris Marriott)

References<19940ct27.211649.5765@acd4.acd.com>
<38pe62\$fpr\$1@mhadf.production.compuserve.com>,
<19940ct29.181530.20669@emr1.emr.ca>
Reply-To: chris@chrism.demon.co.uk
Subject: Re: Copper J-Pole measurements

In article <19940ct29.181530.20669@emr1.emr.ca>
jagrant@emr1.emr.ca "John Grant" writes:

> That's one method, but you can also do the same thing by
> subclassing the radiator control and intercepting the RM_STEAM
> message. Then process it as usual and pass the same message
> on to the connector pipe control. The feedline is best handled by
> installing a hook procedure. All of this can be quite easily

> done in MFC or OWL, unless of course you are a purist, in which
> case you need to superclass the whole thing and process the balun
> message. However, contrary to the above advice, you must NOT
> loop the coax or you will get a stack overflow.

:-) :-) :-)

Chris

--

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-----  
| Chris Marriott, Warrington, UK      | Author of SkyMap v2 shareware    |  
| chris@chrism.demon.co.uk           | astronomy program for Windows.  |  
|      Author member of Association  | of Shareware Professionals (ASP) |  
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End of Ham-Ant Digest V94 #364
